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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/914,894	09/04/2001	Amichai Heines	118/02339	6029

26418 7590 12/27/2004

REED SMITH, LLP
ATTN: PATENT RECORDS DEPARTMENT
599 LEXINGTON AVENUE, 29TH FLOOR
NEW YORK, NY 10022-7650

EXAMINER	
ABDULSELAM, ABBAS I	

ART UNIT	PAPER NUMBER
2674	

DATE MAILED: 12/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/914,894	HEINES ET AL.	
	Examiner	Art Unit	
	Abbas I Abdulselam	2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-74* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-65* is/are allowed.

6)☐ Claim(s) *66-74* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Allowable Subject Matter

1. Claims 1-65 are allowed.

Response to Arguments

2. Applicant's arguments, see # 14, filed 09/07/04, with respect to the rejection(s)of claim(s) 66-70 under 35 U.S.C. (103a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Johnson et al. (USPN 6126140).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 66-74 is rejected under 35 U.S.C. 103(a) as being unpatentable over Webb (USPN 5477600) and Johnson et al. (USPN 6126140).

Regarding claim 66, Webb discloses a micro-mechanical device (10) including semiconductor substrate (12), landing electrodes (14), address electrodes (16), and support posts (18) supporting deflectable beam (20) and suspending deflectable beam (20) over the landing

electrodes (14) and address electrodes (16). Webb illustrates the device or otherwise known as deformable mirror device (10) in its deflected position (Fig. 1) when the voltage is applied between deflectable beam (20) and one of the address electrodes (16). Webb further teaches that the voltage applied normally causes deflectable beam to deflect toward the address electrode (16) and contact the immediately adjacent landing electrode (14), and when the voltage is removed, the deflectable beam returns to its undeflected position. See col. 2, lines 26-49. Webb does not specifically teach flipping the panel by applying a voltage. However, as mentioned above, Webb discloses voltage application to cause the deflectable beam to deflect so that an adjacent electrode is contacted. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize Webb's voltage application for the purpose of making an adjacent contact. One would have been motivated in view of the suggestion that voltage application can be equivalently used to obtain the desired flipping of the panel.

Webb does not teach of voltage being applied to a "landing electrode". Webb also does not teach counteracting stiction between said panel and a surface using field generated by applying a voltage to the levitation electrode." Johnson on the other hand teaches preventing stiction or the sticking of a diaphragm to an electrode after having been attracted by an electric force. Johnson further teaches that larger electric fields may be used without the onset of stiction, generating greater force or more rapid response. See col. 4, lines 55-61. See col. 2, lines 23-34, col. 2, line 48 and col. 3, lines 1-2.

Therefore, it would have bee obvious to one of ordinary skill in the art at the time the invention was made to modify Webb's micro-mechanical device to adapt prevention of stiction through applications of electric field. One would have been motivated in view of the suggestion

in Johnson that prevention of stiction through applications of electric field can be used to satisfy the desired application of voltage to two electrodes, as well as counteracting stiction. The use of preventing stiction through applications of electric field helps function a micro-machined micro device as taught by Johnson.

Regarding claim 67, Webb in view of Johnson has been discussed above. In addition, Johnson teaches the use of insulating materials with low leakage, high dielectric breakdown strength, and compatibility with the other materials. Johnson also teaches the use of polycrystalline or other materials. It would have been obvious that Webb as modified teaches the use of a wide variety of materials including polycrystalline materials which for one of ordinary skill in the art would include the desired piezoelectric materials.

Regarding claims 68, Webb in view of Johnson has been described above. In addition, Johnson teaches the use a wafer bonding method to produce a structure having a central pillar connected to both upper and lower electrodes, both of which are conductive. Johnson further teaches the pillar moves from one side to the other as electrostatic force is applied to each driving electrode.

Regarding claims 69-70, Johnson teaches prevention stiction or the sticking of a diaphragm to an electrode after having been attracted thereto by electrostatic force.

Regarding claim 71-74, as mentioned above, Webb illustrates the use of deformable mirror device (10) in its deflected position (Fig. 1) when the voltage is applied between deflectable beam (20) and one of the address electrodes (16). Webb further teaches that the voltage applied normally causes deflectable beam to deflect toward the address electrode (16)

and contact the immediately adjacent landing electrode (14), and when the voltage is removed, the deflectable beam returns to its undeflected position. See col. 2, lines 26-49. It would have been obvious to utilize Webb's teaching in connection with Johnson's' prevention of stiction through applications of electric field in order to meet the extent to which voltages should be applied.

Conclusion

4. The prior art made of record and not relied upon is considered to applicant's disclosure. The following arts are cited for further reference.

U.S. Pat. No. 5,638,946 to Zavracky

5. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Abbas Abdulselam** whose telephone number is **(703) 305-8591.** The examiner can normally be reached on Monday through Friday (9:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Richard Hjerpe**, can be reached at **(703) 305-4709.**

Any response to this action should be mailed to:

Commissioner of patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314

Hand delivered responses should be brought to Crystal Park II, Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology center 2600 customer Service office whose telephone number is (703) 306-0377.

Abbas Abdulselam

Examiner

Art Unit 2674

December 20, 2004

XIAO WU
PRIMARY EXAMINER